REMARKS

ELECTION/RESTRICTIONS

The undersigned attorney-of-record confirms that an election was made with traverse to prosecute the invention of Group I, claims 1-7, 18 and 19 during a telephone conversation with the Examiner. Claim 19 is canceled, as it is dependent on canceled claim 8.

INFORMATION DISCLOSURE STATEMENT

The Applicants note that the Information Disclosure Statements filed March 21, 2005 and January 25, 2007 have been fully considered.

35 USC §102

Claims 1-3, 5, 7 and 18 are rejected under 35 USC §102(b) as being anticipated by Nguyen et al. (US 6238596). The Applicant respectfully disagrees.

Amended claim 1 recites as follows:

"A layered thermal component, comprising:

at least one thermal interface component, wherein the thermal interface component comprises at least one rubber compound having at least one terminal hydroxyl group and at least one thermally conductive filler material; and

at least one heat spreader component coupled to the thermal interface component, wherein the combination of the at least one thermal interface component and the at least one heat spreader component is designed to minimize interfacial thermal resistance in the layered thermal component." (emphasis added)

The specification of the current application states on page 31:

"As discussed herein, the thermal interconnect system, thermal interface and interface materials are beneficial for many reasons. One reason is that the heat spreader component and interface material has excellent wetting at the interface between the heat spreader component and the interface material, and this interfacial wetting is able to withstand the most extreme conditions. A second reason is that the heat spreader component/thermal interface material combination disclosed and discussed herein reduces the number of steps necessary for package assembly by the customer – given that its pre-assembled and quality checked before the customer receives it. The pre-assembly of the component also reduces the associated costs on the part of the customer. A third reason is that the heat spreader component and the thermal interface material can be designed to "work together", so that the interfacial thermal resistance is minimized for the specific

combination of heat spreader component and thermal interface material."

It is the combination of the at least one thermal interface material and the at least one heat spreader that are specifically chosen for one another to knowingly and strategically minimize interfacial thermal resistance.

Nguyen, which is commonly-owned and assigned to Honeywell International Inc. along with the present application, discloses compliant and crosslinkable thermal interface materials and states that they can be pre-applied to heat sinks, but there is no appreciation of strategically minimizing interfacial thermal resistance in selection of the thermal interface material with the heat sink.

In addition, Nguyen does not teach all of the claimed elements of the present application. "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundscriber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention "**arranged as in the claim**". *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Nguyen does not teach at least one thermal interface material and the at least one heat spreader that are specifically chosen for one another to knowingly and strategically minimize interfacial thermal resistance. Claim 1 is therefore allowable as not being anticipated by Nguyen. Further, Nguyen does not anticipate claims 2-3, 5, 7 and 18 of the present application by virtue of their dependency on claim 1.

Claims 1-5, 7 and 18 are rejected under 35 USC §102(b) as being anticipated by Pate et al. (US 4584336). The Applicant respectfully disagrees.

Amended claim 1 recites as follows:

"A layered thermal component, comprising:

at least one thermal interface component, wherein the thermal interface component comprises at least one rubber compound having at least one terminal hydroxyl group and at least one thermally conductive filler material; and

at least one heat spreader component coupled to the thermal interface component, wherein the combination of the at least one thermal interface component and the at least one heat spreader component is designed to minimize interfacial thermal resistance in the layered thermal component." (emphasis added)

The specification of the current application states on page 31:

"As discussed herein, the thermal interconnect system, thermal interface and interface materials are beneficial for many reasons. One reason is that the heat spreader component and interface material has excellent wetting at the interface between the heat spreader component and the interface material, and this interfacial wetting is able to withstand the most extreme conditions. A second reason is that the heat spreader component/thermal interface material combination disclosed and discussed herein reduces the number of steps necessary for package assembly by the customer – given that its pre-assembled and quality checked before the customer receives it. The pre-assembly of the component also reduces the associated costs on the part of the customer. A third reason is that the heat spreader component and the thermal interface material can be designed to "work together", so that the interfacial thermal resistance is minimized for the specific combination of heat spreader component and thermal interface material."

It is the combination of the at least one thermal interface material and the at least one heat spreader that are specifically chosen for one another to knowingly and strategically minimize interfacial thermal resistance.

Pate discloses thermally conductive one-component room temperature vulcanizable organopolysiloxane compositions, but there is no appreciation of strategically minimizing interfacial thermal resistance in selection of the thermal interface material with the heat sink.

In addition, Pate does not teach all of the claimed elements of the present application. "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundscriber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention "**arranged as in the claim**". *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Pate does not teach at least one thermal interface material and the at least one heat spreader that are specifically chosen for one another to knowingly and strategically minimize interfacial thermal resistance. Claim 1 is therefore allowable as not being anticipated by Pate. Further, Pate does not anticipate claims 2-5, 7 and 18 of the present application by virtue of their dependency on claim 1.

35 USC §103

Claims 1-3, 5-7 and 18 are rejected under 35 USC §103(a) as being unpatentable over Bartley et al (US 6084775) in view of Nguyen et al. (US 6238596). The Applicant respectfully disagrees.

Amended claim 1 recites as follows:

"A layered thermal component, comprising:

at least one thermal interface component, wherein the thermal interface component comprises at least one rubber compound having at least one terminal hydroxyl group and at least one thermally conductive filler material; and

at least one heat spreader component coupled to the thermal interface component, wherein the combination of the at least one thermal interface component and the at least one heat spreader component is designed to minimize interfacial thermal resistance in the layered thermal component." (emphasis added)

The specification of the current application states on page 31:

"As discussed herein, the thermal interconnect system, thermal interface and interface materials are beneficial for many reasons. One reason is that the heat spreader component and interface material has excellent wetting at the interface between the heat spreader component and the interface material, and this interfacial wetting is able to withstand the most extreme conditions. A second reason is that the heat spreader component/thermal interface material combination disclosed and discussed herein reduces the number of steps necessary for package assembly by the customer – given that its pre-assembled and quality checked before the customer receives it. The pre-assembly of the component also reduces the associated costs on the part of the customer. A third reason is that the heat spreader component and the thermal interface material can be designed to

"work together", so that the interfacial thermal resistance is minimized for the specific combination of heat spreader component and thermal interface material."

It is the combination of the at least one thermal interface material and the at least one heat spreader that are specifically chosen for one another to knowingly and strategically minimize interfacial thermal resistance.

Bartley teaches aluminum heatsinks that are platable with a solderable layer and overplated with a solder release layer. The release layer comprises a tin-lead-indium alloy. In addtion, a mechanically compliant, thermally conductive adhesive is used to join the heat sink to the module. There is no appreciation, however, in Bartley of strategically minimizing interfacial thermal resistance in selection of the thermal interface material with the heat sink.

Nguyen, which is commonly-owned and assigned to Honeywell International Inc. along with the present application, discloses compliant and crosslinkable thermal interface materials and states that they can be pre-applied to heat sinks, but there is no appreciation of strategically minimizing interfacial thermal resistance in selection of the thermal interface material with the heat sink.

The combination of Bartley with Nguyen does not cure the deficiencies of Bartley such that the combination renders claim 1 of the present application unpatentable. Claim 1 is therefore allowable as not being anticipated by Nguyen. Further, Nguyen does not anticipate claims 2-3, 5-7 and 18 of the present application by virtue of their dependency on claim 1.

Claims 1-7 and 18 are rejected under 35 USC §103(a) as being unpatentable over Bartley et al (US 6084775) in view of Pate et al. The Applicant respectfully disagrees.

Amended claim 1 recites as follows:

"A layered thermal component, comprising:

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at least one heat spreader component coupled to the thermal interface component, wherein the combination of the at least one thermal interface component and the at least one heat spreader component is designed to minimize interfacial thermal resistance in the layered thermal component." (emphasis added)

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"As discussed herein, the thermal interconnect system, thermal interface and interface materials are beneficial for many reasons. One reason is that the heat spreader component and interface material has excellent wetting at the interface between the heat spreader component and the interface material, and this interfacial wetting is able to withstand the most extreme conditions. A second reason is that the heat spreader component/thermal interface material combination disclosed and discussed herein reduces the number of steps necessary for package assembly by the customer – given that its pre-assembled and quality checked before the customer receives it. The pre-assembly of the component also reduces the associated costs on the part of the customer. A third reason is that the heat spreader component and the thermal interface material can be designed to "work together", so that the interfacial thermal resistance is minimized for the specific combination of heat spreader component and thermal interface material."

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The combination of Bartley with Pate does not cure the deficiencies of Bartley such that the combination renders claim 1 of the present application unpatentable. Claim 1 is therefore allowable as not being anticipated by Pate. Further, Pate does not anticipate claims 2-3, 5-7 and 18 of the present application by virtue of their dependency on claim 1.

Honeywell Docket No. H0004275.68586 US - 4018
Buchalter Docket No.: H9925-3405

REQUEST FOR ALLOWANCE

Claims 1-7 and 18 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

Respectfully submitted,

Buchalter Nemer, A Professional Corp.

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By:

Sandra P. Thompson, PhD, Esq.
Reg. No. 46,264
E-mail: sthompson@buchalter.com
Direct Line: 949-224-6282

ATTORNEYS FOR APPLICANT(S):
18400 Von Karman Ave., Suite 800
Irvine, CA 92612
Tel: 949-224-6282
Fax: 949-224-6203